

Appendix I

Research and implementation work at Fraunhofer Gesellschaft zur Förderung der angewandten Forschung (FIGD)

FIGD investigated the important visualization techniques needed within the Virtualfires project for the scientific and for the realistic visualization of the simulation output. Several basic visualization methods were analysed and implemented as prototypes.

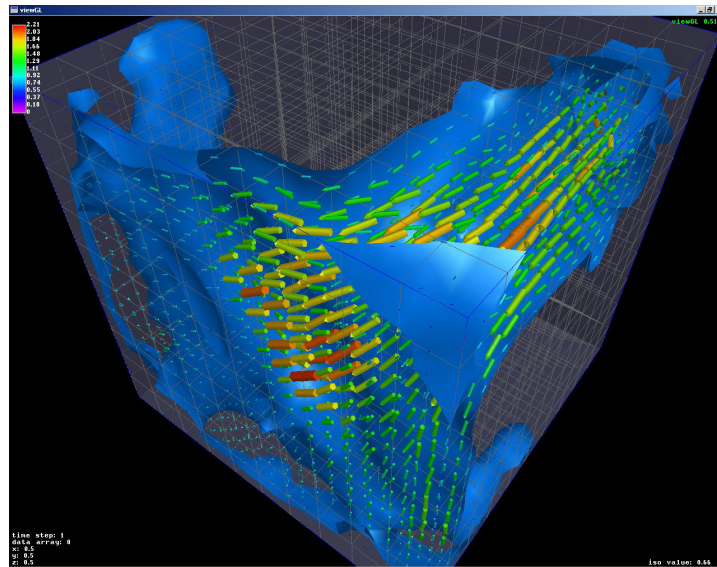


Fig.1: Prototype implementation: tetrahedron based iso surface extraction with vector field

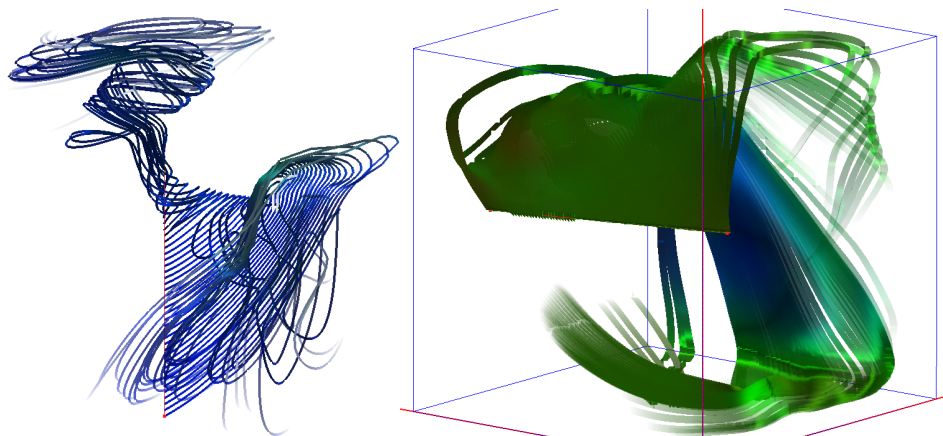


Fig.2 : Prototype implementation: streamlines & pathlines extraction

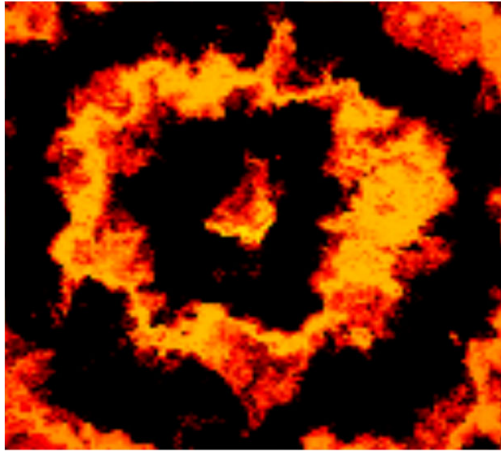


Fig.3: Prototype implementation : fractal 3D fire textures

Here are some screenshots out of our visualization method prototypes to give an overview of the different topics investigated by IGD.

Furthermore the basics for the general concept of the program structure and layout of the IGD visualization software for Virtualfires was designed and developed. The main concept for the massive parallel visualization was determined. Afterwards the concept was verified by implementing a prototype of the approach. An schematic sketch of the generated system is presented in the following figure.

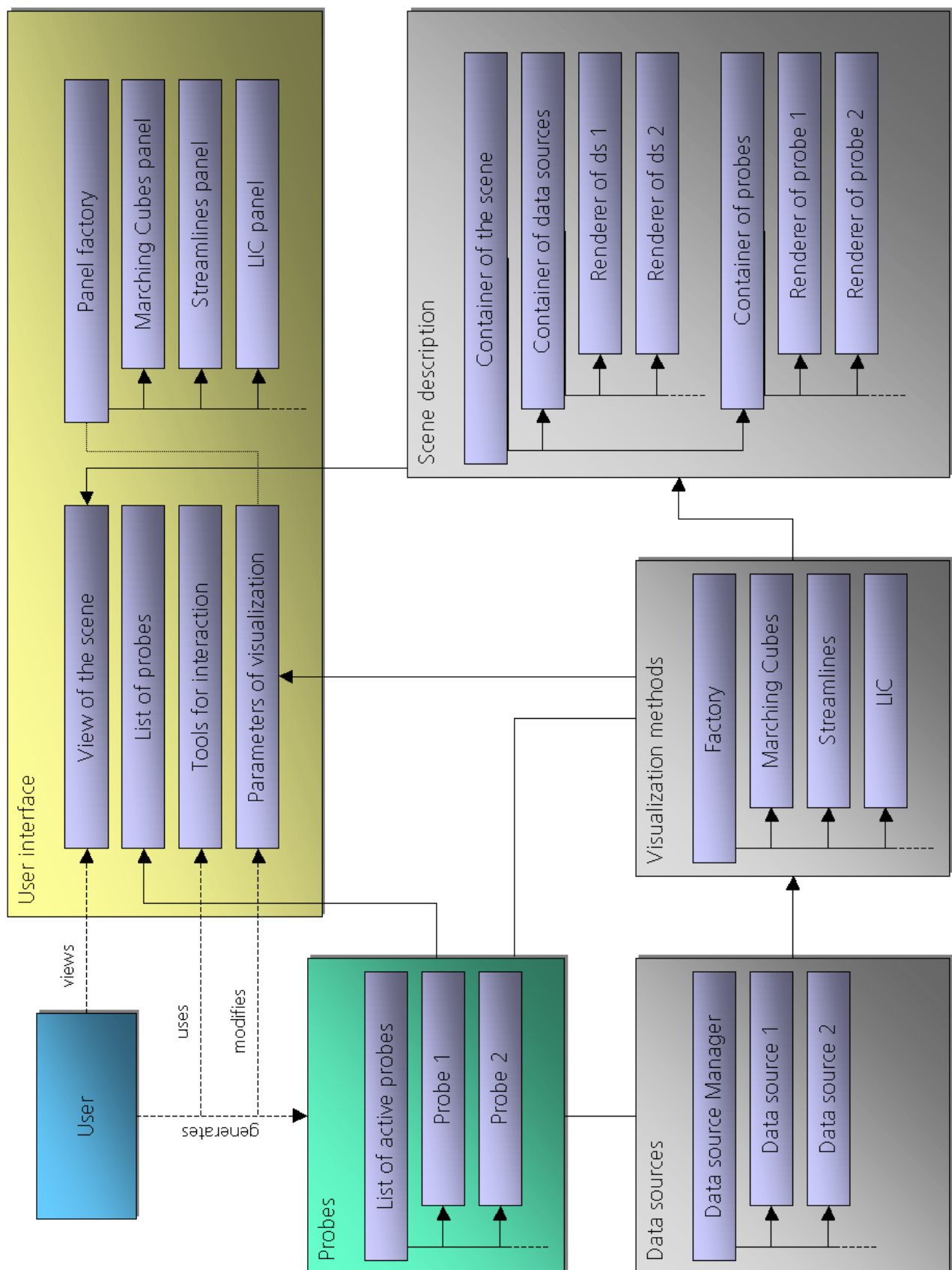


Fig.4: Basic prototype system layout